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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,601

12/27/2005

Jens Muller

GRUNP53

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49691

7590

06/19/2009

IP STRATEGIES  
12 1/2 WALL STREET  
SUITE E  
ASHEVILLE, NC 28801

EXAMINER

BARROW, AMANDA J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

06/19/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/538,601	<b>Applicant(s)</b> MULLER ET AL.	
	<b>Examiner</b> AMANDA BARROW	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7,8 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/9/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION*****Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-6 and 9-16, in the reply filed on 5/12/2009 is acknowledged. The traversal is on the ground(s) that the reference does not disclose or suggest all of the features common to the claims. After a more in depth look at the reference, the arguments were found persuasive because the side cover plates are not adapted to receive ribs of the plate elements as recited in the claims as pointed out by the Applicant. However, after further searching, the restriction stands as the common subject matter does not make a contribution over the prior art (Washington et al. US Patent 5,750,281) which recites all of the common subject matter (plate elements, a plurality of recesses and/or perforations, and receiving ribs of the plate elements). The requirement is still deemed proper and is therefore made FINAL.

***Drawings***

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Washington et al. (US Patent 5,750,281).

Regarding claim 1, Washington teaches a fluid flow field plate 260 (frame element) and edge manifold plates 262a (plate elements) where the fluid flow field plate 260 (frame element) includes “recesses/perforations” (not numbered but illustrated in Figure 21) and the edge manifold plates 262a include “ribs” (not numbered but illustrated in Figure 21) (column 10, lines 12-22). The recesses/perforations receive the ribs and are arranged to form a stack which is illustrated in Figure 1. The assembled version of the fluid flow plate 260 (frame element) is illustrated in Figure 20 in which the ribs pass through the recesses/perforations.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 2, 3, 6, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washington et al. (US Patent 5,750,281).

Regarding claim 2, Washington teaches a fluid flow field plate 260 (frame element) with recesses/perforations for passing the ribs of the edge manifold plates 262a (plate elements) through to form a stack (column 10, lines 12-22; see also figures 21 and 22). Washington teaches that two or more full cells can be connected together in series or parallel and can be arranged to form a stack (column 1, line 59 through column 2, line 27). Washington also teaches that fluid flow plates are typically formed of graphite and act as current collectors and are therefore electrically conductive (column 1, lines 59-62).

Washington does not disclose whether the wiring is bipolar or monopolar; however, the structure taught by Washington is substantially identical to the claims and therefore, the edge manifold assembly of Washington could be easily modified to support a monopolar wiring of the edge manifold plates 262a (plate elements) if it isn't already wired as such. The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02).

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Regarding claim 3, Washington discloses a fluid flow field plate 260 (frame element) with a "regular pattern" which is illustrated is also illustrated in Figure 21. The pattern in this case can be described as a "continuous, serpentine, substantially parallel pattern" (column 7, lines 27).

Regarding claims 6, 13 and 14, Washington teaches that the fluid flow field plate 260 (frame element) contains a channel for fluid conduction along the stack as is clearly illustrated in Figure 21. Washington does not disclose whether the wiring for the stack is bipolar or monopolar; however, the structure taught by Washington is substantially identical to the claims and therefore, the edge manifold assembly of Washington could be easily modified to support a monopolar wiring of the edge manifold plates 262a (plate elements) if it isn't already wired as such. The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02).

6. Claims 4, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washington et al. (US Patent 5,750,281) as applied to claims 2, 3, 6, 13 and 14 and further in view of Zeilinger et al. (US Patent 6,432,569 B1).

Regarding claims 4 and 9, Washington does not teach a printed circuit board in the edge manifold assembly; however, Zeilinger demonstrates that it is well known in the art to include a printed circuit board which mechanically supports and electrically connects electronic components in a fuel cell stack and that this type of fuel cell and others are taught by the Fuel Cell Handbook by A. J. Appleby and F. R. Foulkes, 1989, pp. 440-454 (column 1, lines 39-49).

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A rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art. See *KSR International Co. v. Teleflex Inc.*, 550 U.S., 82 USPQ2d 1385, 1395 (2007) (see MPEP §§ 2143 and 2143.02). Therefore, it would have been obvious to a person of ordinary skill in the art to adapt the printed circuit board, a component well known in fuel cell stacks, to the edge manifold assembly of Washington in order to mechanically support and electrically connect electronic components.

Regarding claim 15, Washington teaches that the fluid flow field plate 260 (frame element) contains a channel for fluid conduction along the stack as is clearly illustrated in Figure 21. Washington does not disclose whether the wiring for the stack is bipolar or monopolar; however, the structure taught by Washington is substantially identical to the claims and therefore, the edge manifold assembly of Washington could be easily modified to support a monopolar wiring of the edge manifold plates 262a (plate elements) if it isn't already wired as such. The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02).

7. Claims 5, 11, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washington et al. (US Patent 5,750,281) as applied to claim 2, 3, 6, 13 and 14, and further in view of Kikuchi et al. (US Patent Application 2002/0142209 A1).

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Regarding claims 5, 11 and 12, these claim contains means-plus-function language which invokes a 35 U.S.C. 112, sixth paragraph limitation (see MPEP 2181). The claims recite, "mounting means for two end plates which complete the stack of plate elements to both sides." The Applicant's specification supports this and illustrates the "mounting means" as openings 229 into which the ribs of the end plates 259 can be inserted (Figure 8 and page 14, lines 16-29).

Regarding claim 5, Washington does not disclose two end plates that are mounted to complete the stack of edge manifold plates 262a (plate elements); however Kikuchi teaches a fuel cell stack 50 which is provided with end plates 52a, 52b which form a hinge mechanism 106 by inserting pins 104 into through-holes 75, 102 ("openings") in order to mount the end plates to complete the stack.

The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR International Co. v. Teleflex Inc.*, 550 U.S., 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, A.). Therefore, it would have been obvious to a person of ordinary skill in the art to adapt the end plates of Kikuchi to the fuel cell stack of Washington resulting in the predictable result of providing protection to the stack.

Regarding claim 16, Washington teaches that the fluid flow field plate 260 (frame element) contains a channel for fluid conduction along the stack as is clearly illustrated in Figure 21. Washington does not disclose whether the wiring for the stack is bipolar or monopolar; however, the structure taught by Washington is substantially identical to the claims and therefore, the edge manifold assembly of Washington could be easily modified to support a monopolar wiring of the edge manifold plates 262a (plate elements) if it isn't already wired as such. The prior art can be modified or combined to reject claims as *prima facie* obvious as long



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as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02).

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Washington et al. (US Patent 5,750,281) in view of Zeilinger et al. (US Patent 6,432,569 B1) as applied to claims 4, 9 and 15, and further in view of Kikuchi et al. (US Patent Application 2002/0142209 A1).

Regarding claim 12, this claim contains means-plus-function language which invokes a 35 U.S.C. 112, sixth paragraph limitation (see MPEP 2181). The claim recites, "mounting means for two end plates which complete the stack of plate elements to both sides." The Applicant's specification supports this and illustrates the "mounting means" as openings 229 into which the ribs of the end plates 259 can be inserted (Figure 8 and page 14, lines 16-29).

Regarding claim 12, Washington does not disclose two end plates that are mounted to complete the stack of edge manifold plates 262a (plate elements); however Kikuchi teaches a fuel cell stack 50 which is provided with end plates 52a, 52b which form a hinge mechanism 106 by inserting pins 104 into through-holes 75, 102 ("openings") in order to mount the end plates to complete the stack.

The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR International Co. v. Teleflex Inc.*, 550 U.S., 82 USPQ2d 1385, 1395 – 97 (2007) (see MPEP § 2143, A.). Therefore, it would have been obvious to a person of ordinary skill in the art to adapt the end plates of Kikuchi to the fuel cell stack of Washington resulting in the predictable result of providing protection to the stack.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMANDA BARROW whose telephone number is (571)270-7867. The examiner can normally be reached on 7:30am-5pm EST. Monday-Friday, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sines can be reached on 571-272-1263. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AMANDA BARROW/  
Examiner, Art Unit 1795

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/Brian J. Sines/

Supervisory Patent Examiner, Art Unit 1795